2.0 ISSUES, ALTERNATIVES AND THE PROPOSED ACTION

2.1 Issues

As a result of a scoping process that included internal discussions, public meetings, and written comments received on previous land retirement documents the following issues have been identified as needing analysis relative to the proposed action:

- Physical impacts of land retirement:
  - soil chemistry
  - groundwater level
  - groundwater quality
  - surface water quality
- Potential to rehabilitate native upland wildlife habitat
- Risk of wildlife exposure to contaminants
- Disposition of water
- Socio-economic impacts
- Air Quality
- Post Retirement Land Use (Adaptive Management)

2.2 Resources Not Affected

The following resources were not identified as issues:

- Floodplains: Floodwaters may be diverted to retired lands where topography allows.
- Wetlands: No natural wetlands occur within the project area. Artificial wetlands are not affected by this project.
- Prime or unique farmland: Not affected by this project.
- Wild and scenic rivers: Do not occur within the project area.
- Historic land marks or National Registry Sites. There are no listed sites within the project area.

2.3 Intersex Mice Discovery at Kesterson Reservoir

Monitoring activities at Kesterson Reservoir in 1998 found that 29 of 87 small mammals of four species may have been intersexual. The identification was based on dissections (necropsy) of individuals found structures that appeared to be testes, uterus, and ovaries. Three of the 105 small mammals collected in 1995 had this abnormality. This abnormality is not described in the literature, nor have other biologists working with small mammals observed this phenomenon in a wild population in the San Joaquin Valley. Rodents trapped along the coast in Orange County by CH2MHill in November 1998 were found to have as many as a six percent of 95 rodents collected as possible intersexes, but the animals were not in reproductive condition and so more study needs to be done to confirm this observation. (CH2MHill 1999).

Because this phenomenon was found in four species, CH2MHill scientists felt that the cause was probably something environmental, not genetic mutations. Laboratory studies of primate, hamster, rat and mouse reproduction using various forms of selenium have not shown this effect. Naturally occurring agents could also have a role. Kesterson is a fairly closed system and no longer receives drainwater from San Joaquin Valley farms, so there are no obvious new contaminant sources which would be the causative agent.(CH2MHill 1999).

The Land Retirement Demonstration Project is a totally different situation from Kesterson Reservoir, as these lands have not had drainwater impounded on them. The Demonstration Project offers the opportunity to collect mice from sites other than Kesterson to assist in assessing the extent of the intersex phenomenon in the San Joaquin Valley. Monitoring small mammals for selenium levels is part of the three-tiered monitoring plan. Necropsy protocols can be added to the collection protocol to increase our data base from which to make conclusions.

2.4 Project Location

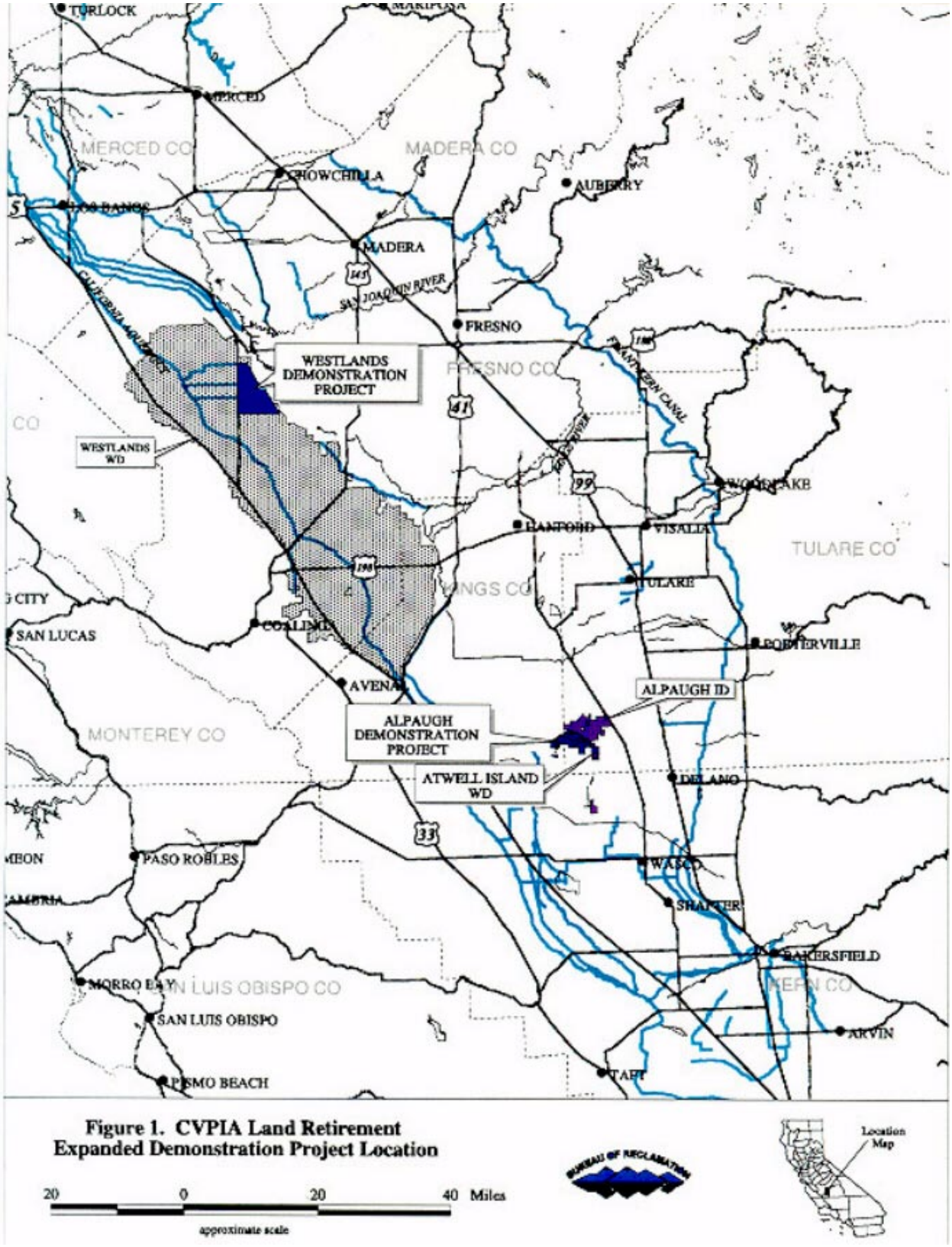
The LRT proposes to expand the original 1891-acre Demonstration Project to a total of 15,000 acres in two geographically and physiographically different drainage-impaired basins. This is being done in order to generate data representative of large scale land retirement (Figure 1).

A total of approximately 7,000 acres (1891 acres of which 1586 were previously acquired, plus about 5,109 additional acres) will be retired in the Westlands Water District (WWD) in western Fresno county in a contiguous, triangular-shaped area bounded by Derrick Ave. on the west, the San Luis Drain to the east, and from North Ave., south to Adams Avenue (Figure 2). These lands would be managed by the Bureau of Reclamation in cooperation with the interagency Land Retirement Team. A second study area of approximately 8,000 acres will be acquired in the Tulare Lake Basin, in eastern Kings and western Tulare counties in the Atwell Island and Alpaugh Water Districts near Delano, CA which will be managed by the Bureau of Land Management in cooperation with the interagency Land Retirement Team and the U.S. Fish and Wildlife Service's Kern and Pixley National Wildlife Refuges. (Figure 3).

The areas identified for acquisition are within the Westlands subarea and the Tulare subarea as defined and recommended for retirement in the Final Report of the San Joaquin Valley Drainage Program (SJVDP 1990b). The LRT determined that retiring lands from these areas would serve the Demonstration Project goal of generating credible scientific data to determine the potential effects of large scale land retirement. Specifically, these areas were selected because of the diversity in land types (drainage characteristics) and suitability of the land for rehabilitation to native upland habitat. A preponderance of willing sellers in a concentrated area creates the potential to acquire large contiguous blocks which are more suited to creating a corridor for wildlife. There is a strong likelihood of acquiring the entire Atwell Island Water District along with the CVP water allocation, and the district's groundwater well field. No applications were received from the Grasslands subarea which drains directly to the San Joaquin River.

2.5 Proposed Action

Under the proposed action various parcels will be retired from different geographic areas with different geologic and hydrologic characteristics. As part of post-retirement land management activities, a number of habitat rehabilitation techniques will be tested to determine which methods work best under various site conditions. This will facilitate a comparison of the effects of management options. The post-retirement land management activities will consist of a suite of management actions designed to rehabilitate retired lands to suitable upland habitat, dominated by a mixture of native grasses, shrubs and forbs, in the shortest amount of time and by the most economical means possible. These activities will be based on an adaptive management approach, utilizing data collected from monitoring to adjust management activities as necessary. As monitoring is implemented, the data may be used to modify and verify the selection criteria and guidelines as appropriate for the land retirement program. (See Appendix 1, Demonstration Project Monitoring Plan). The


TURLOCK
MERCED
MERCED CO
MADERA CO
CHOWCHILLA
AUBERRY
MADERA
SAN JOAQUIN RIVER
FRESNO
WESTLANDS DEMONSTRATION PROJECT
FRESNO CO
FRIANT-KERN CANAL
WESTLANDS WD
KINGS RIVER
WOODLAKE
HANFORD
VISALIA
TULARE CO
TULARE
KINGS CO
COALINGA
SAN LUCAS
PORTERVILLE
AVENAL
ALPAUGH ID
ALPAUGH DEMONSTRATION PROJECT
MONTEREY CO
ATWELL ISLAND WD
DELANO
PASO ROBLES
WASCO
SHAFTER
BAKERSFIELD
MORRO BAY
SAN LUIS OBISPO CO
KERN CO
SAN LUIS OBISPO
ARVIN
PISMO BEACH
TAFT
Figure 1. CVPIA Land Retirement
Expanded Demonstration Project Location
20 0 20 40 Miles
approximate scale
BUREAU OF RECLAMATION
Location Map

roposed project will be monitored and evaluated continuously during the five year study period, with a report published annually.

The Demonstration Project will consist of statistical and empirical studies designed to determine the effects upon soil and groundwater chemistry of removing irrigation water from the land. The project will evaluate various techniques for rehabilitating land to native upland habitat and will monitor wildlife to determine their potential risk of exposure to contaminants such as selenium.

At the end of the 5-year Demonstration Project, Interior will continue management of these lands for upland habitat and Demonstration Project purposes to educate landowners, land managers and other interested parties regarding the effects of land retirement and habitat rehabilitation techniques.

2.6 Features Common to Action Alternatives (Alternatives 1 & 2)

- The LRT will acquire land, water and other property interests from willing sellers only, in accordance with the procedures set forth in the Interim Guidelines, and federal land acquisition standards.

- Lands must be free from hazardous waste, as determined by a site-specific Phase 1 environmental site assessments that meets Department of the Interior(DOI) federal land acquisition standards. (602 DM 2)

- Cleanup of any discovered areas (e.g., pesticide spills or leaky oil tanks, etc.) is generally required before acquisition.

- Fee simple transactions will be preferred and shall be acquired at fair-market value as determined by a DOI-certified appraiser.

- Four land treatment options will be studied: revegetation; reestablishment of micro-topographic features; revegetation and microtopography; and control, or no treatment.

- The Land Retirement Demonstration Project lands will be managed in compliance with the February 3, 1999 Executive Order that directs federal agencies to use their authorities to prevent the introduction of invasive species (weeds, etc.) and to restore native species.

- Native seeds will be collected and used from the local area to minimize alterations to the plant gene pool. When other seed sources are necessary, efforts will be made to ensure compatibility and cleanliness of seed mixes to minimize importation of weeds or pests.

- Minimum-till or no-till farming practices will be used to keep surface disturbances to a minimum to reduce weed establishment.

- Cover crops may be used:
  - when a shortage of desired seed mix exists
  - to protect soils from erosion
  - to reduce unbound nutrients such as nitrogen
  - to reduce weeds
  - as buffer strip to protect both neighbors and demo lands from weeds, pests & chemical drift.

- Integrated Pest Management (IPM) practices will be used to deter weed and pest problems.
  - hedgerows of native plant species foster growth of beneficial insects
  - physical controls: mowing, discing, hand weeding or burning
  - chemical controls: herbicides, insecticides, or fungicides.

- Supplemental irrigation may be used for habitat rehabilitation efforts (< 0.6 acre-feet per acre to avoid deep percolation).

- Micro-topographic features at the Demonstration Project area will be reestablished using heavy equipment to create small berms and mounds in a variety of sizes and patterns.

- Prescribed fire may be used when possible to develop habitat and will be managed in cooperation with air quality agencies and standards.

- Fire prevention and suppression services will be provided by a protection agreement with the California Department of Forestry and Fire Protection (CDF) for the lands within Fresno County (WWD). For the Alpaugh lands, these services will be provided by an interagency fire crew stationed at Kern National Wildlife Refuge comprised of FWS and BLM personnel.

2.7 Alternatives Considered But Not Analyzed

2.7.1 Selection of Sites

Originally, the Demonstration Project planned to test plots in drainage-impaired areas of the Westlands Water District in western Fresno County, in the Tulare Lake Basin and in the Grasslands Bypass Project Service Area. The Grasslands area would have offered an opportunity to measure changes in drainage and wildlife habitat rehabilitation in an area with a direct outlet to the San Joaquin River. Since Land Retirement is a willing seller program, Interior has no control over who applies or where the lands are located, however only lands that receive CVP water are eligible for the program. Applications were received from landowners in the WWD in western Fresno County and Tulare Lake Basin areas; no applications were submitted from the Grassland area. For this reason, the Demonstration Project is focused on the first two areas and not on the Grasslands. If Grassland area landowners come forward at a future date, then an addition to the Demonstration Project could be considered and analyzed at that time.

2.7.2 Types of Acquisition Transactions

There are several ways of acquiring land or the right to implement a Demonstration Project. Several strategies were considered, however the intent of section 3408(h) is that lands be *permanently retired;* therefore, leases are not authorized under the Act. The Land Retirement program may lease lands *with an option to purchase*, or purchase conservation easements, however no applications were received proposing options. All current applicants wish to sell in fee, therefore Interior will purchase the Demonstration Project lands in fee simple.

2.8 Alternatives Analyzed

2.8.1 No-action Alternative

This alternative will continue the existing land use practices of irrigated agriculture. No new lands or their associated water allocations will be acquired. Privately held parcels will likely continue to be farmed with existing irrigation and cropping practices. No new scientific studies of the effects of land retirement upon the physical and biological environment will be initiated, and no comparison studies will be implemented outside of WWD. However, the original Demonstration Project begun on the 1891 acres in WWD (See Figure 2) will continue.

2.8.2 Alternative 1: Land Purchased With Water Allocations

Under Alternative 1, Interior would purchase 15,000 acres and the associated water allocations at fair-market value. Approximately 7,000 acres would be in the WWD (Figure 2), and 8,000 acres would be purchased primarily in the Atwell Island Water District, with some acreage being purchased in the Alpaugh Water District (Figure 3). Acquired water will be used for CVPIA Purposes and may be used on-site for habitat rehabilitation efforts, or transferred out of the district for CVPIA purposes, primarily to enhance fish and wildlife resources.

Water acquired through the land retirement program will be deposited in an environmental water account and managed by the Bureau of Reclamation Mid-Pacific Regional Office in coordination with FWS California-Nevada Office. This water will be allocated annually according to the available supply to environmental or other CVPIA purposes. For water transfers and partial reassignments of contracted supplies, the CVPIA water transfer guidelines shall be followed and the appropriate level environmental analysis shall be completed, prior to water being transferred or reassigned.

2.8.3 Alternative 2: Land Purchased Without Water Allocations

Under Alternative 2, Interior would purchase 15,000 acres without the associated water allocations. Approximately 7,000 acres would be in the WWD, with the associated water allocations to be purchased by WWD at fair-market value, in partnership with the Land Retirement Program. (See Appendix 3, Bureau of Reclamation and Westlands Water District Agreement and Figure 4). In the Alpaugh area, Interior will purchase approximately 8,000 acres at fair-market value, primarily in the Atwell Island Water District, with some acreage being purchased in the Alpaugh Water District.

2.8.3.1 Westlands Water District Partnership Agreement

Under a proposed partnership agreement, WWD and Interior shall share in the costs and benefits of implementing Land Retirement within the WWD, whereby the United States (Interior) shall pay the fair-market value of the land unrelated to CVP water deliveries, plus the fair-market value of any improvements thereon. WWD shall contribute the difference between the total purchase price at fair-market value for irrigated agricultural land and the amount contributed by the United States, up to $1,150 per acre. In the event the difference between the total purchase price and the amount contributed by the United States exceeds $1,150 per acre, the United States and Westlands shall negotiate a different division of the total purchase price, and if any agreement is not reached, the land will not be acquired pursuant to this Agreement.

The water associated with the retired lands shall be transferred to WWD supplemental supply, however such water shall not be used on lands that are within the area cross-hatched on the map as shown in Figure 4. Further, such water shall not be used to convert native lands to irrigated agricultural production. The boundaries of this cross-hatched area shown may be adjusted, or specific exceptions within the area may be made, upon agreement between USBR and WWD drainage engineers that such adjustment or exception will not cause, contribute to, or make worse existing or future drainage problems. Any adjustment to this area will be based on physical factors such as Natural Resource Conservation Service (NRCS) soil classifications, trends in groundwater levels, hydraulic conductivities, geohydrology and shallow groundwater quality. At a minimum, adjustments or modifications to the depicted area shall meet the following criteria: NRCS soil classification moderate to well-drained; shallow groundwater levels greater than ten feet; water tables stable or declining within a one mile radius for at least the previous ten years; and shallow groundwater salinity equal to or less than 12 dS/m and selenium equal to or less than 2 parts per billion (ppb).

As long as the retired lands remain within the WWD boundaries, Interior may apply for an allocation from the supplemental water supply for use on retired lands for upland habitat management purposes. Interior estimates, in order to avoid deep percolation, not more than 0.6 acre-feet of water would be applied annually for the purpose of habitat rehabilitation. It is anticipated that this supplemental irrigation would be for a short-term period of not more than five years, to allow the native plants to become established. Native plants are adapted to the dry conditions and will not require further irrigation.